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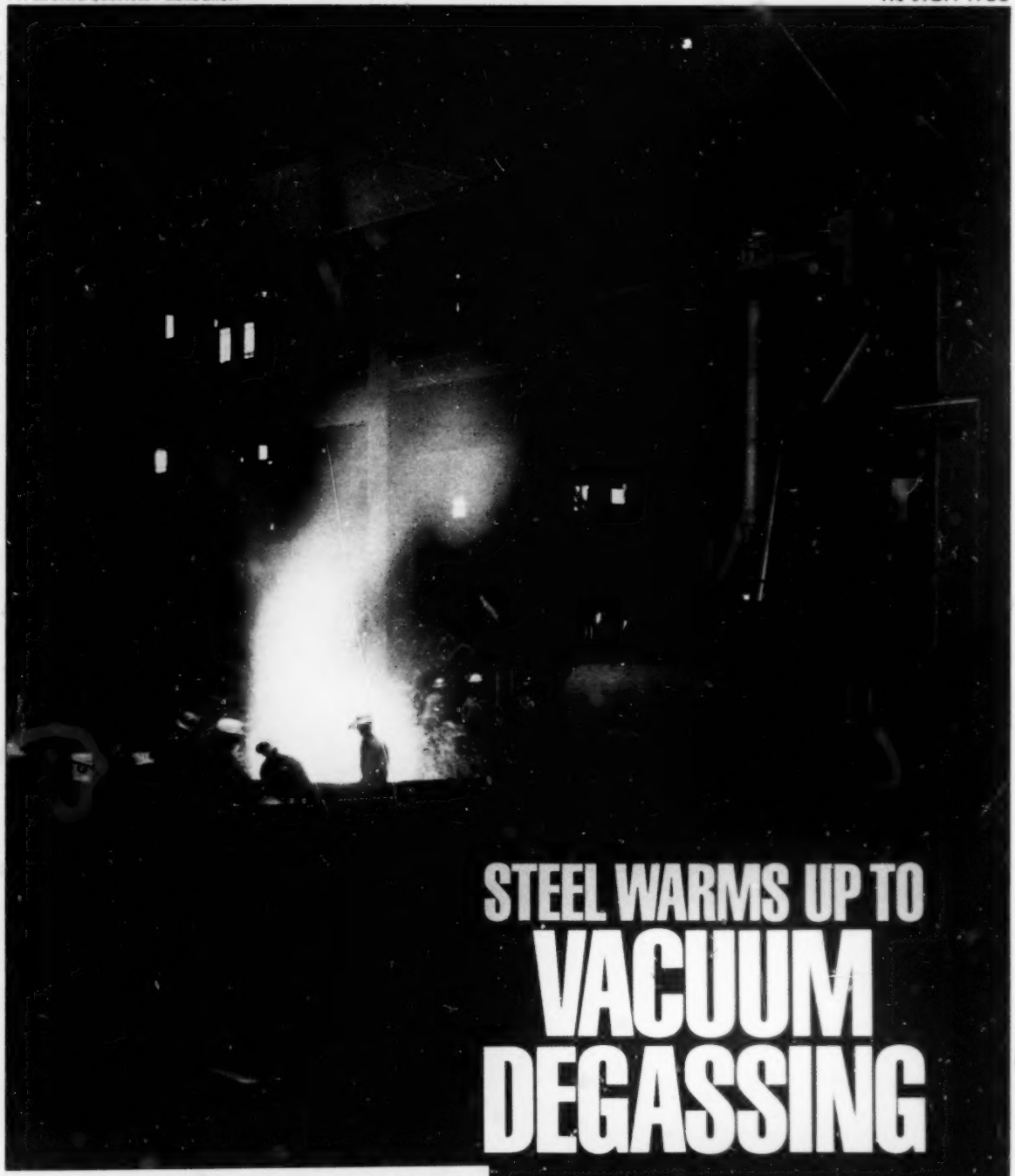
IRON AGE

THE MANAGEMENT MAGAZINE FOR METAL PRODUCERS

A Fairchild Business Publication

MARCH 1988



STEEL WARMS UP TO VACUUM DEGASSING

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Steel Shortage

I have just read George McManus' interesting report on IISI's annual conference in Washington, D.C. As always your coverage of our meetings is greatly appreciated. However, the title "Steel Shortage—What Happened to The World's Surplus?" *(Iron Age*, December 1987, p.14.) may give an excessively optimistic impression of prospects for the world steel industry.

Although all of us are happy with the current upturn in the U.S. and elsewhere, it is dangerous to confuse this temporary short term demand improvement with the underlying long term situation. As pointed out in Washington, the economic outlook is too uncertain to support an optimistic view of medium term steel demand. As for the supply, the consensus in the steel industry would suggest that capacity will be more than adequate. Indeed major industrialized countries such as the European Community and Japan are planning further difficult cutbacks.

It would be premature to conclude that the world steel surplus has disappeared.

Lenhard J. Holschuh
Secretary General
International Iron and Steel Institute
Brussels, Belgium

Correction

An article in the December issue of *Iron Age* ("Third Quarter Earnings—Back in The Black," p. 33) incorrectly referred to a Kaiser Aluminum & Chemical Co. plant in Ravenswood, Va. The plant is located in West Virginia.

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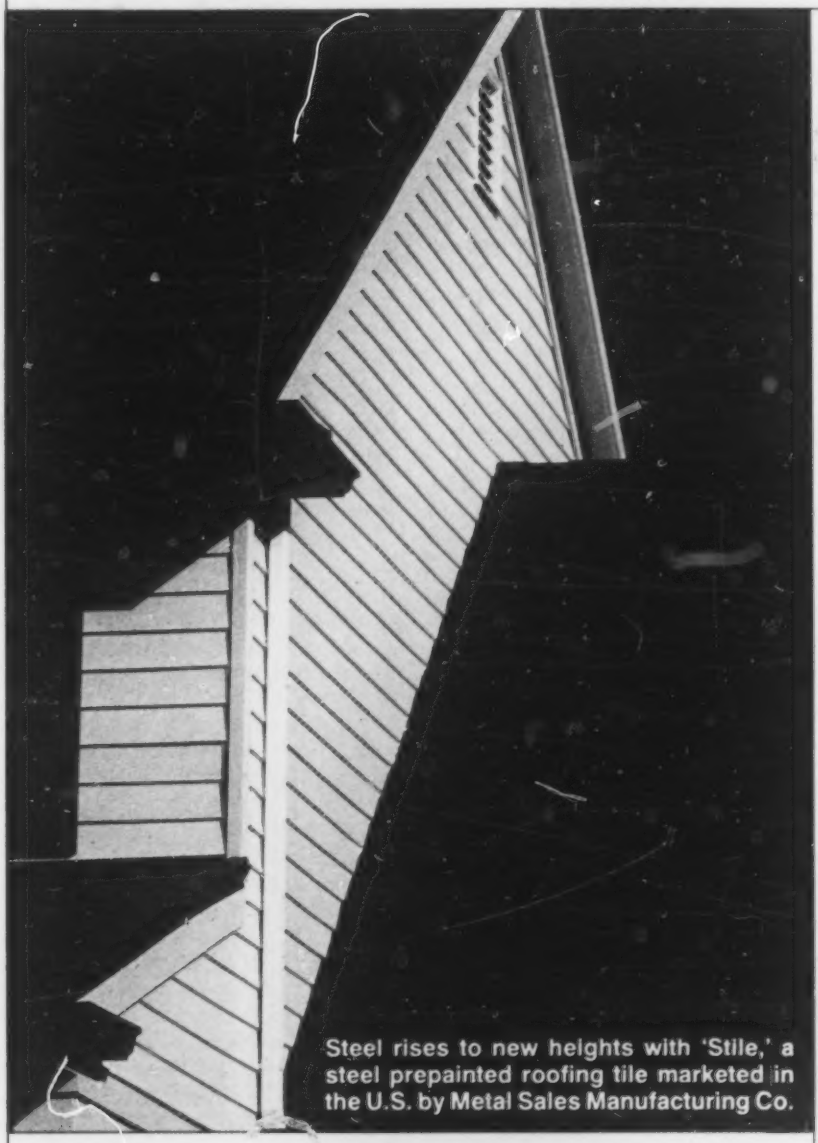

Steel rises to new heights with 'Stile,' a steel prepainted roofing tile marketed in the U.S. by Metal Sales Manufacturing Co.

ARE THERE NEW MARKETS FOR STEEL?

The industry's financial plight has left many steelmakers fighting to stay afloat, but a few are looking for new uses for their metal.

Roll it, can it, tie it, whatever your style is, it could mean profits for steelmakers.

The industry's five-year slump hopefully has ended, and steel companies are anxiously moving toward a new and better future.

For many that means directing their efforts at improving the quality of steel and ensuring their positions in traditional markets.

Others, though, are looking for new applications for steel products. And as the value of the dollar declines in foreign countries, several American steelmakers are ready to explore yet another "new" market – exports.

For the past five years steel has been down on its luck. And some have criticized the industry for being more worried about keeping its head above water, instead of trying to learn a new stroke.

But today with steel regaining momentum, steel companies are in a better position to focus on the future.

As one C.E.O. of a major steel company said about planning for the future: "People who really believe in innovation and progress may look back occasionally but they spend most of their time and energies moving ahead."

And many of the U.S steel companies are doing just that.

Choosing Steel

Today, even traditional steel markets like automobiles, are being invaded by other materials. And that threat is pushing steel companies to look toward new applications and improvements.

According to David Chalk, corporate vice president of research and technology at Armco, Inc., of Middletown, Ohio, protecting the current steel markets is one goal.

"We are spending a lot of our effort to make steel work better. It's a struggle just to stay even with the world when we're combating competition from new materials," he said.

The major users of steel – appliance, energy, aerospace, and automotive industries – are seeing new materials all the time, Mr. Chalk

said, but Armco is working to keep them in steel.

"We're working to make steel the material of choice," he said. "We are always looking for new markets. It's a combination of improving existing applications and looking for new applications."

New Applications

But finding new applications for steel can sometimes be tough.

Dr. Kishen Koul, vice president and general manager of NATCO International, Philadelphia, feels that finding new markets is essential. And that not enough research is being done.

During a panel discussion at the Iron and Steel Society's Electric Furnace Conference in Chicago last December, Dr. Koul asked the panel members whether their companies were seeking new uses for steel. New markets, he added, are one of the keys to the survival of the American steel industry.

"Basically I told them that we were fighting in our backyard," recalled Dr. Koul.

Some of the areas for new markets he suggested included new steel structures on heavily traveled highways, like the freeways near Los Angeles and Route 1 in Princeton, N.J.

"If you look at those areas, the highways are just absolutely jammed, and there is no way to go but up," he said.

"I talked to some of the gentlemen afterwards, and I think they thought it was a good idea. But what they have to do is get together with builders and the state departments of transportation, and put some money into it."

Dr. Koul noted, ten years ago developments like line pipe and high strength steel spawned new markets that produced the demand for millions of tons of steel. "Today," he added, "there is nothing like that going on, nothing at all."

One reason for the lack of developments, Dr. Koul explained, could be attributed to the last five years of financial difficulties in the steel industry. "People are trying to survive now that the market has strengthened. They are trying to just make enough steel to meet the demand," he said.

But there are companies that have come up with a new application for steel in the U.S. By replacing materials like wood or ceramic, or noticing new uses foreign consumers are making of steel, these companies have experimented and applied steel in new areas.

Railroad Ties

One new application for steel has been developed for the railroads.

Nucor Corp. has taken an idea, employed first in France but now used throughout the world, and applied it to a product dominated by wood.

By replacing wooden railroad ties with steel and concrete ties, Nucor believes, the railroads could save time, money and manpower.

G. Wayne Studebaker, Nucor's general manager of research and development, claimed the combination steel and concrete ties could double the life expectancy of the track. Wooden ties have an average life of about 25 years.

The new ties are two pads of cement held together with an I-beam. Each tie weighs 400 lbs and contains about 105 lbs of steel. The tie is designed to replace a wood tie or a concrete tie which has a small amount of steel.

Nucor Chairman F. Kenneth Iverson said the tie is patented but had to be redesigned.

"We have a license to produce it from the inventor. Because of the different spacing and loads in the U.S., we had to redesign the tie so that it will carry the heavy loads that we haul," Mr. Iverson said.

The relative cost until this time has been in favor of wood, said Mr. Studebaker. "The railroads were generally strained for money and were limited in what they spent on maintenance and replacing ties.

"Right now, the initial investment is very close to even between the cost of new steel and concrete ties, and wooden ties," he noted.

The railroads and their maintenance crews were not receptive to steel and concrete ties, Mr. Studebaker said. Even after cost savings were demonstrated to them, he added, the railroads were still reluctant.

Nevertheless, a few railroads have installed the new ties.

According to Mr. Iverson, four years ago the first steel and concrete ties were used on a main switching line of the Illinois Gulf Railroad in Chicago, and some ties are being used on an experimental basis on the Southern Pacific Railroad in northern California.

"We also have similar ties on the Metroliner in Atlanta," Mr. Iverson added.

Steel vs. Aluminum

Weirton Steel Corp., of Weirton, W. Va., has developed a new steel can end, with hopes at putting a dent in the growing aluminum food can industry. Aluminum has captured 5 pct of the metal food can market in the last few years.

William T. Saunders, vice president of product development and research for Weirton, said the new can end "will go a long way toward keeping steel the principal choice in material for food cans."

The new easy open end is made of 85 lb base box tinplate, which has been continuously annealed

NEW MARKETS FOR STAINLESS STEEL

Potential Annual Demand by 1990 (in lbs)

Gas Furnaces	16,000,000
Washers and Dryers	15,000,000
Piping Systems for Nuclear Power Plants	8,000,000
Piping Systems for Offshore Drilling	12,000,000
Automotive	40,000,000

Source: Allegheny Ludlum

of 85 lb base box tinplate, which has been continuously annealed and rolled to a T-4 Rockwell hardness. The new ring pull is 155 lb base box tinplate.

According to Harold L. Baker, manager of Weirton's marketing research administrative services, the new end will be much easier and safer for consumers. One advantage is the ring acts as a lever to lift the end up, said Mr. Baker.

"Easy-open ends on steel cans have been available for about 15 years, but none of them were any good," said Mr. Saunders. "At Weirtec, the R&D arm of Weirton, we spent about two years developing this product."

'You'll Like Our Stile'

Another application from overseas could create a brand new market for steel.

According to Tom Morris, regional vice president of Metal Sales Manufacturing Corp., Louisville, Ky., a producer of metal panels for the construction industry, the new application is a pre-painted steel roofing tile.

One of the company goals in marketing the 'Stile' steel roofing system, is getting steel, as opposed to clay tile, used for residential and multi-family applications.

The Stile tiles are formed from 26 gage galvanized steel and weigh 1 lb per sq ft. The tiles are manufactured under a license from a Swedish firm.

If steel hopes to excel in this new market, it must overcome some obstacles, mainly consumer reluctance. "It's just a question of getting past the idea that it's not tile, but just something that looks like tile," said Mr. Morris.

"The advantages they have are the same advantages we feel steel has, it's light weight, doesn't burn, doesn't rot, it's easy to use and lasts a long time," he said.

The company has actively marketed the product since 1982, though Mr. Morris admitted that it's been a slow process. "But," he added, "we're seeing our acceptance growing every year."

Mr. Morris emphasized that a real market potential for steel is in the development of a family of products priced more competitively with asphalt. Pre-painted steel parts like door jambs, headers and trim, could save time and money, he said.

Workers install Nucor's new steel and concrete ties along a section of the Southern Pacific Railroad in northern California.

"That market continues to develop more accessory items every year. The integrated steel companies are now just getting to the point where their bottom line profitability is such that they can begin to invest money in longer term marketing ventures," said Mr. Morris. "And when that happens, they will be able to get a much larger potential of the market."

Accu-Namel

Bethlehem Steel Corp., of Bethlehem, Pa., has also introduced a new product it hopes will become an alternative to another material.

Otto Ehrsam, market development engineer for Bethlehem, said the new product, designed to replace enameling iron, is a porcelain enameling steel sheet to be used in the appliance industry.

"We have been working on a cold-rolled steel that looks very much like enameling iron. We call it Accu-Namel," he said.

Accu-Namel is a low carbon steel produced on a continuous caster and heat treated on Bethlehem's Burns Harbor continuous heat treating line (CHTL Line).

Mr. Ehrsam emphasized that there's a stronger focus in higher quality steel.

"The appliance industry is extremely demanding in surface quality and shape of the material. After all, they're right there in front of the housewife to see all the time," Mr. Ehrsam said.

James C. Van Vliet, Bethlehem's vice president of marketing, said Accu-Namel has been "proven to provide excellent performance in forming and enameling appliance applications" compared to enameling iron.

"This is important to manufacturers," Mr. Van Vliet continued, "who find their source of enameling iron to be in decline due to its high production cost."

Enameling iron is an ingot-cast product, and according to Bethlehem, is a relatively high cost material. The new product is more cost-efficient.

"The ingot-cast material will probably go on its merry old way," predicted Mr. Ehrsam.

Accu-Namel has been used in a process known as no-pickle, no-nickle frits, (frits is ground glass that is fused or melted to the surface of the steel) which requires clean steel. The sheet is electrolytically clean, and even meets all the requirements of the automotive industry for smut-free steel.

"This is just perfect for these no-pickle, no-nickle frits. So we are right in tune with all the things that are developing in the enameling industry and the appliance industry," said Mr. Ehrsam.

Stainless Steel

For many specialty steelmakers new application research is big business. (Cont. on p. 26.)

Bert Delano, director of corporate communication at Allegheny Ludlum Corp., Pittsburgh, agreed with Bethlehem's Mr. Ehrsam that high quality steel is in for 1988.

"There is an obvious 'quality ethic' that has been developing in this country over the last decade. People want things to last longer, to service better, and not fall apart," he observed.

Because of the warranties attached to many products, Mr. Delano said, companies are not going to stick their neck out for a product that is not going to last. "So that brings them to a product like stainless steel.

"We believe there are a myriad of new applications and markets for stainless steel in the next few years and well into the 1990s," said Mr. Delano.

One of the most exciting new applications for Allegheny Ludlum, according to Mr. Delano, is in high efficiency gas home heating furnaces, now mandated by law. "By designing a stainless steel heat recuperator, furnace manufacturers now offer furnaces with over 90 pct fuel efficiency, an increase from less than 50 pct."

These new designs require up to 12 lbs of stainless steel per furnace and, said Mr. Delano, the material recommended by corrosion engineers consists of one of two alloys patented by Allegheny Ludlum.

"What you face is a high intensity of heat and corrosion and other operating conditions that require the advantages of our special alloy stainless. So the product that we make fits their needs," he said.

The company predicts that by 1990 the new furnaces will mean millions of lbs of stainless steel per year. "Our estimates is that the potential annual demand by 1990 will be about 16 million lbs of stainless steel for high efficiency gas furnaces, so this is a significant market," Mr. Delano said.

Stainless steel provides a durability that other materials, like enameled iron and plated carbon steel, cannot match, said Mr. Delano. In addition, environmental problems associated with porcelain and plating processes increase the costs of these materials.

Weirton's new, easy-open steel can end is aimed at putting a dent in the aluminum industry's bid for the food can market.

Other markets on the horizon for Allegheny Ludlum, include washer and dryer applications, the retrofitting of nuclear power plants to replace other materials that have corroded or are predicted to corrode, and oil pipe systems for increased offshore drilling.

Service water piping systems for drilling, after a time, must be replaced, and some of Allegheny Ludlum's new alloys are candidates for use in these applications, said Mr. Delano.

"To some extent it will depend on the growth of the market and the continued drilling offshore."

The boom the stainless steel industry has been experiencing during the last year or two wasn't so much due to new applications for stainless but the broad growth of stainless in several industries.

The offshore drilling market is not a new one for steel, but improvements have allowed stainless steel to replace other materials.

According to Dr. James Redmond, president of Technical Marketing Resources in Pittsburgh, stainless steel that handles seawater has been used to replace corrosion plagued copper-based alloys.

"Because stainless steel stays cleaner, the heat transfer in actual use over a period of time, in a seasoned condition, is better than that of the copper alloys," he said.

Another area seeing growth in the high-alloyed austenitic stainless steel is service water piping in nuclear power plants, said Dr. Redmond.

"Things like sea-cure have been very successful in replacing copper nickel and condenser tubing in power plants," said Dr. Redmond.

"In the past people have used cement pipes and lined carbon steel, and there has been tremendous corrosion problems, and this is why the 6-moly stainless steels, like the 254 SMO, were used first in Sweden."

Stainless steel is also replacing material in the auto industry.

According to Dr. Redmond, the automotive industry is an important market for new steel replacements.

"In the drive for longer life and emphasis on improved quality and durability, there certainly has been a great movement toward using stainless steel," Dr. Redmond said. "In some ways it has almost been a quiet revolution.(Cont. on p. 28.)

"I think the boom the industry has been experiencing during the last year, or so, wasn't so much new application as the use of stainless steel. In the auto area, there certainly has been a nice growth in the use of stainless steel in exhaust systems," he said.

Armco has recently received a patent for a new oxidation-resistant steel. The steel is 409 stainless steel base, and is .020 in. thick and coated with a heavy pure aluminum coating. The material is cold reduced to foil gages of about .0025 in. thick. It is heat treated after rolling which diffuses the base material and coating together.

"In terms of sheer tonnage, the use of 409 in automotive exhaust systems is probably the largest new application over the last five years."

Dr. Redmond added that type 409, originally intended for catalytic converters, is now being used for mufflers and tailpipes..

The carbon steel, that most exhaust systems were made from, would rust away after a while, said Dr. Redmond, usually corroding from the inside out.

In the last 15 years sheet steel for automobile bodies has shifted from cold-rolled steel to corrosion resistant materials, said Armco's Mr. Chalk. Although it's a market that has always been there, a lot a technology, such as the 409 stainless, has been put into improving the product.

"A variety of products have been introduced to upgrade the performance of what was traditionally just regular old carbon steel," Mr. Chalk said.

According to Mr. Chalk, one example would be the catalytic converters that are on most cars now. "The majority of them have one form or another of ceramic as the substrate for the catalytic. We've been working on a steel product based on stainless steel that can be used in that same application."

According to the company, the newly designed catalytic converter, in addition to its cost advantage, also offers better integrity and heats up faster than competitive materials.

Exports

Is there an export market out there for U.S. steel?

Many believe there is.

Robert Cassidy, director of steel trade policy at the U.S. Trade Representative's office, Washington, D.C., said the U.S. steel industry has a greater edge on exports in countries where a major change in the exchange rate has taken place, and that one of the government's responsibilities is to assure that these markets remain open to increase U.S. exports.

The American steel industry is now geared to compete in the international market because of the dollar situation

"What that level of exports will be, I would not predict," Mr. Cassidy admitted.

"One would expect the U.S. to be at a relative advantage on the downstream products. You might see that in the products made of wire rod and pipe. But where the advantages lie would have to be the most competitive market forces," he said.

One of the problems that might prevent the industry from exporting a large amount, said Mr. Cassidy, is the industry's inability to increase production because of the high rates of capacity utilization for our domestic market.

"At least in the short term that might constrain them a bit. But as some of the domestic demand subsides then there may be increased production available for exports.

Overcoming the problems in exporting, continued Mr. Cassidy, is going to depend on the individual companies willingness to get out into the market and sell. "In the early 1980s, the steel industry sort of retrenched from the export market, so it's going to be difficult to get back into it.

Nucor's Mr. Iverson also believes the U.S. steel industry hasn't done enough exporting in the past and the ability to export depends on the export structure.

"It's not whether we will be able to export more steel and steel products than we have in the past. But, it's worthwhile to note that we really don't have much of a structure in this country for exporting steel or products. We really have to rebuild the exporting abilities we have," he said.

NATCO's Dr. Koul said some in the U.S. steel industry are reviving their export groups and that the time has come to export.

"Last year the American export was 1 million tons, which is negligible. We should take a part of the international market whatever it is. The American steel industry is now geared to compete in the international market because of the dollar situation. That should be a big push. The situation at present is they can not keep up with the local market, and when you come to that type of situation, you forget that a time will come when demand may not be that much. Where will the steel go then? So you have to be in the international market," said Dr. Koul.

USS Division of USX Corp.is taking advantage of the new export market by reopening its exporting division.

Ernie Glenn, a spokesman for USS, said the overseas market is looking more promising than it has for years.

U.S. Steel International, Inc., the exporting arm for USS has been dormant because, according to Mr. Glenn, there were no export opportunities. "We see the potential for far greater export opportunities again and we have therefore taken this step. We'll have sales representatives in foreign countries and representatives to market our products as the opportunities arise," said Mr. Glenn.

By M. Dougherty

4TH QUARTER EARNINGS
A DOSE OF PROFITS

Steel and nonferrous metals shipments are up, prices are up, and as a consequence, the metals industry's balance sheets have a healthy glow of profitability.

The steel industry turned several corners in 1987.

Steel shipments, which had been averaging under 70 million tons since 1982, rose to about 77 million tons.

After declining for five years, steel prices began rising.

Steel earnings probably turned a corner. Lukens, Inc., had record profits as well as record sales in 1987. The net income of Inland Steel Industries, Inc., rose from $19 million in 1986 to nearly $145 million in 1987.

CF&I Steel Corp. had its first profitable quarter in two and a half years. The steel industry as a whole made money in 1987. That certainly constituted a recovery from the loss of $4.2 billion in 1986.

One sign of the times was the word that dividends were being increased by Inland and Lukens, and a cash dividend was being initiated by Birmingham Steel Corp.

There has been a recovery, but with so many special charges and credits, it's difficult to get a clear picture of steel profitability.

USX Corp., for example, went from a net loss of $1.8 billion in all of 1986 to a net profit of $219 million in 1987. That seemed a great comeback from the strike impacted period until you learned that USX lost $14 million in the fourth quarter of 1987.

That looked bad until you saw that the steel division (USS) had an operating income of $89 million in the fourth quarter. However, $66 million of this came from a remeasuring of a restructuring provision.

On the other hand, income was reduced $45 million by the use of high-cost inventory. This charge was partly offset by a $17 million

credit from another inventory adjustment.

The exact net effect of all this may be difficult to determine, but in terms of shipments, prices and profits, the steel trend is clearly upward. "We anticipate shipping more in 1988 than in 1987," said David M. Roderick, chairman of USX.

Mr. Roderick explained that his company will be in the unique position of adding capacity in 1988. The startup of new facilities at Fairfield, Ala., will boost production 10 pct, he said.

Until recently, it didn't appear that anyone would need more steel production or capacity. The prevailing view was that steel shipments would fall to about 70 million tons in 1988. That is still the official view, but with shipments running at an annual rate of 80 million tons, people are now quietly revising their estimates upward.

"Our order book remains good through the second quarter" said Howard M. Love, chairman of National Steel Corp. "For the first time in several years, supply and demand appear to be in balance and that has had a positive impact on prices." National earned $22.6 million in the fourth quarter.

What makes the outlook particularly bright is the new opportunity for foreign sales. This is partly a matter of the currency changes and reduced domestic costs. It is also due to a tightening of the world steel market.

"I think what has happened is that the major producers have brought supply and demand into closer balance," said Mr. Roderick. Japan's supply of plates and structurals has tightened, he said, and flat-rolled products are scarce in Europe.

If domestic demand slackens, said Mr. Roderick, there is a ready market abroad for any surplus. The revived international department of USX is already getting "a tremendous number of inquiries from all over the world."

The brightened steel outlook was pointed up by the $71.5 million earned by Bethlehem Steel Corp. in the fourth quarter. Various charges and credits blurred the earnings report, but leaving these out, the operating profit was impressive for a company considered a prime candidate for bankruptcy only a year ago.

The net income of Armco, Inc., was only $3.1 million in the fourth quarter of 1987. That was down from $34.6 million in the final quarter of 1986. Inventory adjustments boosted the 1986 profit and reduced 1987 earnings.

A cloud on the steel horizon is the rising cost of raw material. High scrap prices were cited by Florida Steel Corp. as one factor in an earnings decline from $3.2 million in the fourth quarter of 1986 to a little under $1.6 million in the 1987 quarter. Steel prices have since caught up with the scrap

EARNINGS

STEEL: TURNING THE CORNER

FOURTH QUARTER PROFIT REPORT—1987 (In Millions of Dollars)

		EARNINGS			SALES		
	E/S	4th Q 1987	4th Q 1986	Pct Change	4th Q 1987	4th Q 1986	Pct Change
USX	—	(14)	(1,415)	—	4,232.0	2,770.0	+53.0
LTV	7.0	140.6	(470.1)	—	1,986.0	1,916.7	+3.6
BETHLEHEM	5.9	71.5	34.2	+109.0	1,205.1	1,022.4	+18.0
INLAND	6.5	59.5	30.2	+97.0	960.6	817.6	+13.0
ARMCO	0.4	3.1	34.6	-91.0	787.4	668.2	+18.0
NATIONAL	3.5	22.6	2.8	+707.0	640.6	593.0	+8.0
TOTAL	2.9	283.3	(369.7)	—	9,771.7	7,787.9	+25.0
WEIRTON	4.7	15.7	10.0	+57.0	331.3	313.8	+5.6
WHEEL-PGH	—	(164.8)	(213.8)	—	249.8	240.7	+3.7
ALLEG. LUD.	4.6	10.7	—	—	234.6	181.0	+30.0
LUKENS	4.9	6.6	(0.3)	-	133.2	104.6	+27.0
CARPENTER	3.2	4.0	2.0	+100.0	125.9	110.5	+14.0
FLORIDA	1.4	1.6	3.2	-51.0	112.6	74.4	+51.0
CME	3.7	3.4	(9.8)	—	91.9	64.7	+42.0
IRMINGHAM	6.2	5.1	2.6	+93.0	82.2	42.0	+93.0
LACLEDE	6.9	4.8	1.6	+206.0	70.0	58.1	+20.0
CF&I	1.7	1.3	(2.2)	—	76.4	49.6	+54.0

( ) Indicates a loss

YEARLY PROFIT REPORT—1987 (In Millions of Dollars)

		EARNINGS			SALES		
	E/S	1987	1986	Pct Change	1987	1986	Pct Change
USX	1.5	219.0	(1,833.0)	—	14,836.0	14,938.0	-0.7
LTV	6.6	502.6	(3,268.3)	—	7,581.8	7,271.4	+4.3
BETHLEHEM	3.8	174.3	(152.7)	—	4,620.5	4,332.9	+6.6
INLAND	4.2	145.0	19.3	+653.0	3,453.2	3,173.2	+8.8
ARMCO	4.0	117.6	(472.0)	—	2,927.2	2,640.5	+11.0
NATIONAL	2.0	47.8	(59.8)	—	2,416.5	2,127.8	+14.0
TOTAL	3.4	1,206.3	(5,766.5)	—	35,835.2	34,483.8	+3.9

NONFERROUS: HIGHER PRICES PAID A DIVIDEND

FOURTH QUARTER PROFIT REPORT—1987 (In Millions of Dollars)

	EARNINGS			SALES		
	4th Q 1987	4th Q 1986	Pct Change	4th Q 1987	4th Q 1986	Pct Change
ALCAN	$136.0	$61.0	+123.0	$1,868.0	$1,482.0	+26.0
ALCOA	132.8	165.3	-19.7	1,466.1	1,166.4	+25.7
ASARCO	70.3	28.2	+149.3	429.9	254.9	+68.7
BRUSH WELLMAN	8.5	6.2	+37.1	86.0	63.0	+36.5
COMINCO	75.0	(143.4)	—	397.8	337.3	+17.9
FALCONBRIDGE*	43.2	6.1	+608.2	433.9	285.0	+52.3
INCO	75.0	(6.5)	—	571.0	384.0	+48.7
KAISERTECH	44.8	(22.6)	—	516.5	508.6	+1.6
NEWMONT MINING	4.9	(42.4)	—	143.5	114.3	+25.6
PHELPS DODGE	105.4	10.8	+875.9	506.1	206.2	+145.4
PINE POINT MINES*	6.9	6.6	+4.8	28.3	27.0	+4.8
REYNOLDS METALS	80.0	76.3	+4.9	1,155.9	1,014.6	+13.9
VULCAN MATERIALS	27.4	15.6	+75.6	246.3	197.7	+24.6

( ) Indicates a loss * Canadian funds

bulge, said the company, and earnings will be restored in 1988.

Birmingham Steel Corp. seems to have taken the scrap price escalation in stride. Net earnings of Birmingham's growing network rose from $2.6 million in the fourth quarter of 1986 to $5 million in the fourth quarter of 1987. During the quarter, the company began operating its newest acquisition, Barbary Coast Steel in Emeryville, Calif.

The zooming price of stainless scrap didn't seem to hurt Allegheny Ludlum Corp., now a public company again. "With our outstanding performance in 1987, return on shareholders' equity was 22 pct," said Richard P. Simmons, chairman of Allegheny Ludlum.

Nonferrous

The nonferrous metals industries turned in one of its best performances in many years during 1987. Prices, shipments, and as a results, profits rose for most of the major segments of the industry.

Aluminum industry shipments were up 6.4 pct by the end of November to an estimated 15.1 billion lbs, according to the Aluminum Association. Mill products shipments rose 4.7 pct to nearly 12 billion lbs, the association said, while ingot shipments rose 13.3 pct, to an estimated 3.1 billion lbs, and exports climbed 34.2 pct, to 1.1 billion lbs.

And as Reynolds Metals economist Lloyd T. Carroll noted in a recent speech of the National Aluminum Distributors Association, the gains in 1987 were gains in consumption and not customer inventories.

The fourth quarter results served to reassure industry members that the turnaround was not only a certainty but also a harbinger of better days ahead.

Paul O'Neill, chairman of the Aluminum Co. of America (Alcoa) noted that the final quarter of 1987 continued the steady upward trend of the year. Demand for aluminum products remains strong and he sees no end to that pace.

"Despite the unrest in the financial markets since October," he added, "we do not see a break in the recovery for our industry."

Alcoa reported a 24 pct increase in sales for the fourth quarter, to $1.44 billion from $1.16 billion in the same period of 1986. For the year, the big aluminum maker revenues rose to $5.49 billion, up 18 pct from the $4.67 total from the previous year.

The company's fourth quarter earnings were down when compared to the year-earlier quarter, but the 1986 results included a real estate sale (Alcoa Properties, Inc.) and other special items. Excluding those items, profits for the fourth quarter of 1986 totaled $27.1 million compared with the $132.8 million for the same three-month span in 1987.

Copper producers turned in stronger balance sheets at year-end, thanks largely to a dramatic gain in prices

The outlook from William O. Bourke, president and CEO of Reynolds Metals Co., was equally upbeat. "As we enter the new year, aluminum demand is on the rise and both producer and customer inventories are at historic lows," he said.

Reynolds' sales totaled $1.12 billion for the last three months of 1987 compared to $1.01 billion in the same period of 1986. Net sales for the year increased to $4.3 billion from the $3.8 billion for 1986.

Reynolds' income in the fourth quarter rose to $80 million compared to the 1986's period's $76.3 million, which included a $116.2 million gain from the sale of its Robertshaw Controls subsidiary.

David M. Culver, chairman and CEO of Alcan Aluminium, Ltd., pointed to the strength of the world aluminum market and cost-cutting efforts as the keys to the Canadian aluminum producer's sharp gains in earnings last year.

Alcan's earnings in the fourth quarter more than doubled, to $136 million from $61 million in the same period of 1986. Sales in the period were up 26 pct, to an estimated $1.9 billion from $1.5 billion in the year-earlier period. For the year, earnings rose to $433 million compared to $277 million in 1986. Sales increased to $6.8 billion in 1987 compared to $6.0 billion for the previous year.

Copper producers turned in stronger balance sheets at year-end, thanks largely to a dramatic gain in prices during the latter part of 1987. From a low of 63¢ a lb in January, the red metal rose to a record $1.47 a lb in December.

Phelps Dodge Corp. reported a meteoric gain in earnings for the last three months of 1987—to $105.4 million from $10.8 million in the same period of 1986. Sales for the quarter totaled $506.1 million, more than double the year-earlier tally of $206.2 million.

Asarco, Inc., also posted sharply higher sales and profits for the quarter. Sales in the final three months of 1987 climbed to $429.9 million, up nearly 69 pct from the $254.9 million in the same period of 1986. Earnings rose 149.9 pct to $70.3 million compared with $28.2 million in the final quarter of the previous year.

Inco posted profits of $75 million for the fourth quarter of 1987 compared to a $6.5 million loss for the same period of 1986. The company attributed the gains to improved nickel, copper and precious metals prices; increased nickel deliveries, and lower product costs.

Nickel deliveries reached their highest levels in more than a decade, the company noted. To meet the heavy demand, the big Canadian nickel producer boosted output to 430 million lbs during 1987, compared to 357 million pounds in 1986, and drew down its finished nickel inventories to 57 million lbs, the lowest level since 1970.

By George J. McManus and Michael Marley

PRICE & PRODUCTION DATA

(Effective February 1, 1988)

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
Northeast Coast	282	253	218	119
Pittsburgh	199	190	196	170
Youngstown	118	118	115	110
Lake Erie	164	163	154	111
Detroit	167	160	137	150
Chicago	536	496	494	337
Midwest	184	192	183	163
Southern	209	213	195	138
Western	80	81	55	39
U.S. Production	1,939	1,866	1,747	1,337

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports unless otherwise stated. Rail transportation, handling and unloading may be charged to buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural)..... gross-ton 37.344*
Pellets (per iron unit natural)..... gross-ton 58.0-59.4**
Pellets (per iron unit natural)..... gross-ton 72.45-86.9***
Mesabi, regular-unscreened ..... gross-ton 32.53
Mesabi, non-bessemer ..... gross-ton 30.03-31.53

*37.344¢—U.S. Steel, 5/20/87, FOB Mount Iron, Minn. **58.0¢—Mineral Services, Inc. as of 8/13/85. **59.4¢—Inland Steel Mining, 1/1/85 and Pickands Mather, 8/1/85, delivered hold of vessel, upper Lake ports. ***72.45¢—Cleveland-Cliffs as of 12/30/86. 86.9¢—Oglebay Norton 3/25/82, Hanna Mining 2/26/82.

STEEL PRODUCTION, COMPOSITE PRICES

(Effective February 1, 1988)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1988	To Date 1987
Net tons, in thousands	1,939	1,866	7,954	5,743
Capability Utilization Rate	90.3	86.9	86.4	62.9

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 1/3/88)	24.223	24.223	26.002	25.236
Pig Iron** (Net ton= 2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.*** (Gross ton=2240 lbs.)	$113.17	$101.83	$ 97.83	$ 77.50
No. 2 bundles	$ 71.50	$ 67.17	$ 65.50	$ 51.17

Scrap Comparison (Gross Ton)

No. 1 steel, Pittsburgh	$123.50	$108.50	$103.50	$ 82.50
No. 1 steel, Philadelphia	98.50	95.50	88.50	71.50
No. 1 steel, Chicago	117.50	101.50	101.50	78.50
No. 1 bundles, Detroit	138.50	107.50	106.50	85.50
Low Phos., Youngstown	130.50	108.50	105.50	82.50
No. 1 mach'y cast., Pgh	102.50	92.50	92.50	74.50
No. 1 mach'y cast., Phila	111.50	106.50	101.50	93.50
No. 1 mach'y cast., Chi	120.50	115.50	115.50	101.50

*Finished Steel Composite: Weighted index of steel bars, structurals, plates, rails, hot rolled and cold rolled sheets.
**Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
***Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

NONFERROUS PRICES

(Effective February 1, 1988) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum (LME)	82.00	84.00	2/1/88
Copper (C)	110.00	128.00	2/1/88
Lead	37.00	38.00	2/1/88
Magnesium Ingot	153.00	148.00	12/9/85
Nickel (LME)	355.00	344.00	2/1/88
Zinc	46.00	45.00	1/14/88

ALUMINUM: Avg. for last week & previous week. COPPER (C)=cathode. LEAD: common grade. MAGNESIUM: 99.8% pig delivered. NICKEL: Avg. for last week & previous week. ZINC: high grade.

Antimony, American Laredo, Texas	$2.00
Beryllium-aluminum 5% Be, per lb. contained Be	$248.00
Beryllium-copper, per lb. cont. Be	$152.00
Beryllium 97% powder 200	$196.00
Cadmium, ton lots	$1.50
Calcium, ton lots, crown	$3.92
Chromium, 99.5% electro	$4.62
Cobalt, 99%, cathode	$12.50
Gold, per troy oz.	$452.70
Indium, per troy oz.	$9.95
Iridium, per troy oz.	$345.00
Magnesium sticks, 10,000 lbs.	$2.12
Mercury, per 76-lb., f.o.b. N.Y.	$348.00
Molybdenum, lb. tech. moly oxides, 20 lb. MO can	$3.45
Palladium, per troy oz.	$116.00
Platinum, per troy oz.	$456.00
Rhodium, per troy oz.	$1,255.00
Silver ingots, per troy oz.	$6.56
Titanium sponge, melt grade	$4.00
Tungsten powder, hyd red	$9.53-9.85
Vanadium	$6.00
Zirconium sponge	$11.20-17.00

(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb. EX-SMELTER, based on daily market in Kuala Lumpur in Malaysian dollars per kilo.)

Jan. 25—306.00 Jan. 28—307.00
Jan. 26—305.00 Jan. 29—307.00
Jan. 27—306.00

Scrap Prices
Brass Mill Scrap

(Cents per lb., over 20,000 lbs. add 1¢ per lb.)

	Solids	Turnings
Copper	80	75
Yellow brass	70½	69½
Red brass	68½	64½
Comm. bronze	69	64
Mang. bronze	52	51
Free cutting rod ends	63½	62½

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	80
No. 2 copper wire	70
Light copper	64

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	70
No. 2 copper wire	61
Light copper	54
No. 1 composition	55
No. 1 comp. turnings	55
Hvy. yellow brass solids	41
Hvy. yellow brass turnings	35
Radiators	38

Aluminum		
New mixed clips	56	— 57
Old sheet	50	— 51
Old cast	51	— 52
Clean dry borings	46	— 47

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum		
Segregated clippings	50	— 51
Mixed L.C. clips	49	— 50
Old sheets and cast	43	— 44
Borings and turnings	37	— 38
Duraluminum clippings	43	— 44
Copper and Brass		
No. 1 copper wire	65	— 67
No. 2 copper wire	55	— 56
Light copper	49	— 50
Radiators	38	— 39
No. 1 composition	53	— 54
No. 1 composition turnings	49	— 50
Cocks and faucets	46	— 47
Clean heavy yellow brass	42	— 43
Brass pipe	48	— 49
New soft brass clippings	60	— 61
Lead		
Heavy soft lead	13	— 14
Whole batteries	2	— 3
Type metal	23	— 24
Electrotype	16	— 17
Nickel		
Nickel solids	200	—210
Nickel rod ends	203	—213
Nickel sheets, clips	203	—213
Nickel turnings	89	— 99
Zinc		
New zinc clippings	17	— 18
Old diecast zinc	13	— 14

EFFECTIVE FEBRUARY 1, 1988

(Effective February 1, 1988) Prices obtained or trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of Iron Age editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 123.00 to	$ 124.00
No. 2 hvy. melting	113.00 to	114.00
No. 1 dealer bundles	162.00 to	163.00
No. 1 factory bundles (auto)	162.00 to	163.00
No. 2 bundles	74.00 to	75.00
No. 1 busheling	162.00 to	163.00
Machine shop turnings	23.00 to	24.00
Shoveling turnings	69.00 to	70.00
Cast iron borings	68.00 to	69.00
Low phos. punchings plate	162.00 to	163.00
Heavy turnings	113.00 to	114.00
No. 1 RR hvy. melting	135.00 to	136.00
Rails, 2 ft and under	164.00 to	165.00
Scrap rails, random lgth	140.00 to	141.00
RR specialties	150.00 to	151.00
No. 1 machinery cast	102.00 to	103.00
Cupola cast	94.00 to	95.00
Heavy breakable cast	40.00 to	41.00
Stainless		
18-8 bundles and solids	920.00 to	925.00
18-8 turnings	820.00 to	825.00

Chicago

No. 1 hvy. melting	$ 117.00 to	$ 118.00
No. 2 hvy. melting	112.00 to	113.00
No. 1 dealer bundles	156.00 to	157.00
No. 1 factory bundles (auto)	155.00 to	156.00
No. 2 dealer bundles	78.00 to	79.00
No. 1 busheling	147.00 to	148.00
Shredder scrap	139.00 to	140.00
Machine shop turnings	55.00 to	56.00
Mixed borings and turnings	47.00 to	48.00
Shoveling turnings	64.00 to	65.00
Cast iron borings	69.00 to	70.00
Low phos. forge crop	162.00 to	163.00
Low phos. punchings plate 1/4 in. and heavier	178.00 to	179.00
Low phos. 2 ft and under	173.00 to	174.00
No. 1 RR hvy. melting	128.00 to	129.00
Scrap rails random lgth	130.00 to	131.00
Reroller rails	149.00 to	150.00
Rails, 2 ft and under	173.00 to	174.00
RR couplers and knuckles	124.00 to	125.00
RR car axles	164.00 to	165.00
No. 1 machinery cast	120.00 to	121.00
Cupola cast	109.00 to	110.00
Stove plate	119.00 to	120.00
Steel car wheels	156.00 to	157.00
Stainless		
18-8 bundles and solids	800.00 to	810.00
18-8 turnings	700.00 to	710.00
430 bundles and solids	180.00 to	190.00
430 turnings	95.00 to	105.00

Philadelphia

No. 1 hvy. melting	$ 97.00 to	$ 100.00
No. 2 hvy. melting	87.00 to	90.00
No. 1 dealer bundles	145.00 to	148.00
No. 2 dealer bundles	60.00 to	63.00
No. 1 busheling	130.00 to	133.00
Shredder scrap	125.00 to	128.00
Machine shop turnings	29.00 to	32.00
Mixed borings and turnings	29.00 to	32.00
Shoveling turnings	50.00 to	53.00
Low phos. 5 ft and under	125.00 to	128.00
Low phos. 2 ft punchings	145.00 to	148.00
Electric furnace bundles	150.00 to	153.00
RR specialties	125.00 to	128.00
Rails, 2 ft and under	145.00 to	148.00
Cupola cast	99.00 to	102.00
Heavy breakable cast	52.00 to	55.00
No. 1 machinery cast	110.00 to	113.00

Detroit

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 85.00 to	$ 86.00
No. 2 hvy. melting	83.00 to	84.00
No. 1 dealer bundles	138.00 to	139.00
No. 2 bundles	61.00 to	62.00
No. 1 busheling	136.00 to	137.00
Drop forge flashings	85.00 to	86.00
Machine shop turnings	53.00 to	54.00
Mixed borings and turnings	25.00 to	26.00
Shoveling turnings	53.00 to	54.00
Cast iron borings	59.00 to	60.00
Heavy breakable cast	45.00 to	46.00
Mixed cupola cast	62.00 to	63.00
Automobile cast	84.00 to	85.00
Stainless		
18-8 bundles and solids	805.00 to	815.00
18-8 turnings	440.00 to	450.00
430 bundles and solids	160.00 to	170.00

Youngstown

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 105.00 to	$ 106.00
No. 2 hvy. melting	94.00 to	95.00
No. 1 dealer bundles	146.00 to	147.00
No. 2 dealer bundles	64.00 to	65.00
Machine shop turnings	45.00 to	46.00
Shoveling turnings	45.00 to	46.00
Low phos. plate	130.00 to	131.00
Electric furnace bundles	126.00 to	127.00
Galvanized bundles	123.00 to	124.00

Cleveland

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 100.00 to	$ 101.00
No. 2 hvy. melting	89.00 to	90.00
No. 1 dealer bundles	146.00 to	147.00
No. 1 factory bundles	144.00 to	145.00
No. 2 bundles	60.00 to	61.00
No. 1 busheling	141.00 to	142.00
Machine shop turnings	50.00 to	51.00
Shoveling turnings	50.00 to	51.00
Cast iron borings	50.00 to	51.00
Cut structural & plates, 5 ft. and under	119.00 to	120.00
Cut structural & plates, 2 ft. and under	142.00 to	143.00
Low phos. punchings plate	145.00 to	146.00
Foundry steel, 2 ft. & under	92.00 to	93.00
No. 1 RR hvy. melting	112.00 to	113.00
Rails, 2 ft. and under	144.00 to	145.00
Rails, 18 in. and under	146.00 to	147.00
No. 1 machinery cast	90.00 to	91.00
Mixed cast	55.00 to	56.00
Stainless		
18-8 bundles	810.00 to	820.00
18-8 turnings	445.00 to	455.00
430 bundles	165.00 to	175.00

Buffalo

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 90.00 to	$ 91.00
No. 2 hvy. melting	80.00 to	81.00
No. 1 busheling	139.00 to	140.00
No. 1 dealer bundles	139.00 to	140.00
No. 2 bundles	45.00 to	46.00
Machine shop turnings	28.00 to	29.00
Mixed borings and turnings	28.00 to	29.00
Shoveling turnings	34.00 to	35.00
Cast iron borings	39.00 to	40.00
Low phos. plate	135.00 to	136.00
Structural and plate, 2 ft and under	136.00 to	137.00
Rails, 2 ft and under	139.00 to	140.00
Scrap rails, random lgth	114.00 to	115.00
No. 1 machinery cast	104.00 to	105.00
No. 1 cupola cast	87.00 to	88.00

St. Louis

No. 1 hvy. melting	$ 112.00 to	$ 113.00
No. 2 hvy. melting	100.00 to	101.00
No. 1 bushoing	139.00 to	140.00
No. 1 dealer bundles	152.00 to	153.00
No. 2 bundles	99.00 to	100.00
Machine shop turnings	41.00 to	42.00
Shoveling turnings	45.00 to	46.00
Cast iron borings	51.00 to	52.00
No. 1 RR hvy. melting	136.00 to	137.00
Rails, random length	118.00 to	119.00
Rails, 5 ft. and under	139.00 to	140.00
Plate and structural, 5 ft and under	136.00 to	137.00
Cupola cast	89.00 to	90.00
Heavy breakable cast	43.00 to	44.00
Stove plate	112.00 to	113.00
Steel car wheels	139.00 to	140.00
Rerolling rails	130.00 to	131.00
Unstripped motor blocks	60.00 to	61.00

Birmingham

No. 1 hvy. melting	$ 97.00 to	$ 98.00
No. 2 hvy. melting	90.00 to	91.00
No. 1 dealer bundles	104.00 to	105.00
No. 2 bundles	74.00 to	75.00
No. 1 busheling	102.00 to	103.00
Shredder scrap	132.00 to	133.00
Machine shop turnings	46.00 to	47.00
Shoveling turnings	56.00 to	57.00
Cast iron borings	38.00 to	39.00
Electric furnace bundles	85.00 to	86.00
Elec. furnace, 3 ft. & under	87.00 to	88.00
Structural and plate, 2 ft	146.00 to	147.00
Structural and plate, 4 ft	141.00 to	142.00
No. 1 RR hvy. melting	141.00 to	142.00
Scrap rails, random lgth	129.00 to	130.00
Rails, 2 ft. and under	148.00 to	149.00
Angles and splice bars	138.00 to	139.00
No. 1 cupola cast	92.00 to	93.00
Unstripped motor blocks	99.00 to	100.00

Cincinnati

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 100.00 to	$ 101.00
No. 2 hvy. melting	92.00 to	93.00
No. 1 dealer bundles	130.00 to	131.00
No. 2 bundles	56.00 to	57.00
No. 1 busheling	130.00 to	131.00
Machine shop turnings	30.00 to	31.00
Shoveling turnings	33.00 to	34.00
Cast iron borings	41.00 to	42.00
Low phos. 18 in. and under	138.00 to	139.00
Rails, random length	113.00 to	114.00
Rails, 2 ft. and under	142.00 to	143.00
No. 1 cupola cast	88.00 to	89.00
Heavy breakable cast	49.00 to	50.00
Drop broken cast	103.00 to	104.00

New York

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 63.00 to	$ 64.00
No. 2 hvy. melting	56.00 to	57.00
No. 2 dealer bundles	35.00 to	37.00
Mixed borings and turnings	10.00 to	11.00
Shoveling turnings	10.00 to	12.00
Clean cast, chem. borings	37.00 to	38.00
No. 1 machinery cast	80.00 to	81.00
Mixed yard cast	52.00 to	53.00
Heavy breakable cast	16.00 to	18.00
Stainless		
18-8 prepared solid	630.00 to	650.00
18-8 turnings	410.00 to	430.00
430 prepared solids	110.00 to	120.00
430 solids	110.00 to	120.00

Boston

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 65.00 to	$ 67.00
No. 2 hvy. melting	55.00 to	57.00
No. 1 dealer bundles	88.00 to	90.00
No. 2 bundles	30.00 to	32.00
No. 1 busheling	83.00 to	85.00
Shredder scrap	78.00 to	80.00
Machine shop turnings	18.00 to	20.00
Shoveling turnings	23.00 to	25.00
No. 1 machinery cast	85.00 to	87.00
Mixed cupola cast	44.00 to	46.00
Heavy breakable cast	22.00 to	24.00

San Francisco

No. 1 hvy. melting	$ 66.00 to	$ 68.00
No. 2 hvy. melting	60.00 to	62.00
No. 1 dealer bundles	58.00 to	60.00
No. 2 dealer bundles	46.00 to	47.00
Machine shop turnings	15.00 to	16.00
Cast iron borings	15.00 to	16.00
No. 1 cupola cast	87.00 to	89.00

Los Angeles

No. 1 hvy. melting	$ 63.00 to	$ 65.00
No. 2 hvy. melting	57.00 to	59.00
No. 1 dealer bundles	55.00 to	57.00
No. 2 dealer bundles	42.00 to	44.00
Machine shop turnings	12.00 to	13.00
Shoveling turnings	13.00 to	14.00
Cast iron borings	13.00 to	14.00
Elec. furnace, 1 ft. and under (foundry)	80.00 to	82.00
No. 1 cupola cast	84.00 to	86.00

Seattle

No. 1 hvy. melting	$ 90.00 to	$ 91.00
No. 2 hvy. melting	82.00 to	83.00
No. 2 bundles	65.00 to	66.00
No. 1 cupola cast	95.00 to	96.00
Mixed yard cast	85.00 to	87.00

Hamilton, Ont.

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 103.00
No. 2 hvy. melting, cut 2 ft. and under	90.00
No. 1 dealer bundles	128.00
No. 2 bundles	79.00
Mixed steel scrap	75.00
Bush. new fact. prep'd	123.00
Bush. new fact. unprep'd	99.00
Machine shop turnings	31.00
Short steel turnings	31.00
Mixed borings and turning	25.00
Cast scrap	102.00

Houston

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 109.00 to	$ 110.00
No. 2 hvy. melting	99.00 to	100.00
No. 2 bundles	57.00 to	58.00
Machine shop turnings	42.00 to	43.00
Crushed turnings	52.00 to	53.00
Shredder scrap	115.00 to	116.00
Cut structural plate, 2 ft. and under	130.00 to	131.00
Cut structural plate, 5 ft. and under	120.00 to	121.00
Unstripped motor blocks	60.00 to	61.00
Cupola cast	95.00 to	96.00